JANUARY 2004 VOLUME 122 NUMBER 1

EDITORIAL

v **Clinical Snippets**
Lowell A. Goldsmith

vi **In This Issue: The Complexities of Epidermolysis Bullosa "Simplex"**
Amy S. Paller

viii **Old Skin with New Insides**
Lowell A. Goldsmith

COMMENTARIES

x **Keratinocyte Heal Thyself: A New Form of "Natural Gene Therapy"**
John A. McGrath

xii **Roads to the Edge of the Cell: Intracellular Transport of Cornified Envelope Precursors**
Arto Määttä

xiv **Evidence for Vascular Endothelial Growth Factor (VEGF) as a Modifier Gene in Psoriasis**
Michael Detmar

REVIEW ARTICLE

CONNECTIVE TISSUE

1 **Insights Into the Molecular Mechanism of Chronic Fibrosis: The Role of Connective Tissue Growth Factor in Scleroderma**
Andrew Leask, Christopher P. Denton, and David J. Abraham

ORIGINAL ARTICLES

APPENDAGES

7 **Topical Estrogen Accelerates Hair Regrowth in Mice After Chemotherapy-Induced Alopecia by Favoring the Dystrophic Catagen Response Pathway to Damage**
Ulrich Ohnemus, Murat Ünalan, Bori Handjiski, and Ralf Paus

14 **Variations of Hair Follicle Size and Distribution in Different Body Sites**
Nina Otberg, Heike Richter, Hans Schaefer, Ulrike Blume-Peytavi, Wolfram Sterry, and Jürgen Lademann

CELL BIOLOGY

20 **Reciprocal Regulation of Thymus and Activation-Regulated Chemokine/Macrophage-Derived Chemokine Production by Interleukin (IL)-4/IL-13 and Interferon-γ in HaCaT Keratinocytes Is Mediated by Alternations in E-cadherin Distribution**
Shoko Fujii-Maeda, Keiich Kajiwara, Kouich Ikizawa, Miki Shinazawa, Bin Yu, Tetsuya Koga, Masutaka Furue, and Yukiyoshi Yanagihara

29 **Microtubule-Dependent Redistribution of a Cytoplasmic Cornified Envelope Precursor**
Ann-Marie Broome and Richard L. Eckert

CLINICAL RESEARCH

39 **Mail Surveys Can Achieve High Response Rates in a Dermatology Patient Population**
Jennifer C. Filip, Michael E. Ming, Ross M. Levy, Ole J. Hoffstad, and David J. Margolis

CONNECTIVE TISSUE

44 **Possible Role of Apoptosis in the Pathogenesis of Bleomycin-Induced Scleroderma**
Toshiyuki Yamamoto and Kiyoshi Nishioka

GENETICS

51 **In Psoriasis Lesional Skin the Type I Interferon Signaling Pathway Is Activated, Whereas Interferon-α Sensitivity Is Unaltered**
Leslie van der Fits, Leontine I. van der Wel, Jon D. Laman, Errol P. Prens, and Martie C. M. Verschuren

61 **Evaluation of the IRF-2 Gene as a Candidate for PSORS3**
John Foerster, Ilja Nolte, Susann Schweiger, Claudia Ehlert, Marcel Bruinenberg, Katja Spaar, Gerrit van der Steege, Marcel Mulder, Vera Kalscheuer, Bettina Moser, Zofia Kijas, Petra Seeman, Markward Ständer, Wolfram Sterry, and Gerard te Meerman

65 **Molecular Consequences of Deletion of the Cytoplasmic Domain of Bullous Pemphigoid 180 in a Patient with Predominant Features of Epidermolysis Bullosa Simplex**
Lionel Fontao, Kaisa Tasanen, Marcel Huber, Daniel Hohl, Jan Koster, Leena Bruckner-Tuderman, Arnoud Sonnenberg, and Luca Borradori

73 **Novel Mechanism of Revertant Mosaicism in Dowling–Meara Epidermolysis Bullosa Simplex**
Frances J.D. Smith, Susan M. Morley, and W.H. Irwin McLean

Copyright © 2004 by The Society for Investigative Dermatology, Inc.

JANUARY 2004 VOLUME 122 NUMBER 1

EDITORIAL

v **Clinical Snippets**
Lowell A. Goldsmith

vi **In This Issue: The Complexities of Epidermolysis Bullosa "Simplex"**
Amy S. Paller

viii **Old Skin with New Insides**
Lowell A. Goldsmith

COMMENTARIES

x **Keratinocyte Heal Thyself: A New Form of "Natural Gene Therapy"**
John A. McGrath

xii **Roads to the Edge of the Cell: Intracellular Transport of Cornified Envelope Precursors**
Arto Määttä

xiv **Evidence for Vascular Endothelial Growth Factor (VEGF) as a Modifier Gene in Psoriasis**
Michael Detmar

REVIEW ARTICLE

CONNECTIVE TISSUE

1 **Insights Into the Molecular Mechanism of Chronic Fibrosis: The Role of Connective Tissue Growth Factor in Scleroderma**
Andrew Leask, Christopher P. Denton, and David J. Abraham

ORIGINAL ARTICLES

APPENDAGES

7 **Topical Estrogen Accelerates Hair Regrowth in Mice After Chemotherapy-Induced Alopecia by Favoring the Dystrophic Catagen Response Pathway to Damage**
Ulrich Ohnemus, Murat Ünalan, Bori Handjiski, and Ralf Paus

14 **Variations of Hair Follicle Size and Distribution in Different Body Sites**
Nina Otberg, Heike Richter, Hans Schaefer, Ulrike Blume-Peytavi, Wolfram Sterry, and Jürgen Lademann

CELL BIOLOGY

20 **Reciprocal Regulation of Thymus and Activation-Regulated Chemokine/Macrophage-Derived Chemokine Production by Interleukin (IL)-4/IL-13 and Interferon-γ in HaCaT Keratinocytes Is Mediated by Alternations in E-cadherin Distribution**
Shoko Fujii-Maeda, Keiich Kajiwara, Kouich Ikizawa, Miki Shinazawa, Bin Yu, Tetsuya Koga, Masutaka Furue, and Yukiyoshi Yanagihara

29 **Microtubule-Dependent Redistribution of a Cytoplasmic Cornified Envelope Precursor**
Ann-Marie Broome and Richard L. Eckert

CLINICAL RESEARCH

39 **Mail Surveys Can Achieve High Response Rates in a Dermatology Patient Population**
Jennifer C. Filip, Michael E. Ming, Ross M. Levy, Ole J. Hoffstad, and David J. Margolis

CONNECTIVE TISSUE

44 **Possible Role of Apoptosis in the Pathogenesis of Bleomycin-Induced Scleroderma**
Toshiyuki Yamamoto and Kiyoshi Nishioka

GENETICS

51 **In Psoriasis Lesional Skin the Type I Interferon Signaling Pathway Is Activated, Whereas Interferon-α Sensitivity Is Unaltered**
Leslie van der Fits, Leontine I. van der Wel, Jon D. Laman, Errol P. Prens, and Martie C. M. Verschuren

61 **Evaluation of the IRF-2 Gene as a Candidate for PSORS3**
John Foerster, Ilja Nolte, Susann Schweiger, Claudia Ehlert, Marcel Bruinenberg, Katja Spaar, Gerrit van der Steege, Marcel Mulder, Vera Kalscheuer, Bettina Moser, Zofia Kijas, Petra Seeman, Markward Ständer, Wolfram Sterry, and Gerard te Meerman

65 **Molecular Consequences of Deletion of the Cytoplasmic Domain of Bullous Pemphigoid 180 in a Patient with Predominant Features of Epidermolysis Bullosa Simplex**
Lionel Fontao, Kaisa Tasanen, Marcel Huber, Daniel Hohl, Jan Koster, Leena Bruckner-Tuderman, Arnoud Sonnenberg, and Luca Borradori

73 **Novel Mechanism of Revertant Mosaicism in Dowling–Meara Epidermolysis Bullosa Simplex**
Frances J.D. Smith, Susan M. Morley, and W.H. Irwin McLean

Copyright © 2004 by The Society for Investigative Dermatology, Inc.

78 **Recurrent Mutations in Kindlin-1, a Novel Keratinocyte Focal Contact Protein, in the Autosomal Recessive Skin Fragility and Photosensitivity Disorder, Kindler Syndrome**
Gabrielle H. S. Ashton, W. H. Irwin McLean, Andrew P. South, Noritaka Oyama, Frances J. D. Smith, Raouf Al-Suwaid, Abla Al Ismaily, David J. Atherton, Catherine A. Harwood, Irene M. Leigh, Celia Moss, Biagio Didona, Giovanna Zambruno, Annalisa Patrizi, Robin A. J. Eady, and John A. McGrath

84 **Letter to the editor: A Novel Nonsense Mutation in Kindler Syndrome**
Cristina Has and Leena Bruckner-Tuderman

IMMUNOLOGY/INFECTION

87 **Tumor Necrosis Factor-α and Interferon-γ Polymorphisms Contribute to Susceptibility to Oral Lichen Planus**
Marco Carrozzo, Mariafederica Uboldi de Capei, Ennia Dametto, Maria Edvige Fasano, Paolo Arduino, Roberto Broccoletti, Denize Vezza, Sabina Rendine, Emilio Sergio Curtoni, and Sergio Gandolfo

95 **Differential Expression and Function of Toll-like Receptors in Langerhans Cells: Comparison with Splenic Dendritic Cells**
Hiroshi Mitsui, Takahiro Watanabe, Hidehisa Saeki, Katsunori Mori, Hideki Fujita, Yayoi Tada, Akihiko Asahina, Koichiro Nakamura, and Kunihiko Tamaki

103 **Characterization of the Anti-BP180 Autoantibody Reactivity Profile and Epitope Mapping in Bullous Pemphigoid Patients**
Giovanni Di Zenzo, Fabiana Grosso, Michela Terracina, Feliciana Mariotti, Ornella De Pit, Katsushi Owaribe, Alessandro Mastrogiacomo, Francesco Sera, Luca Borradori, and Giovanna Zambruno

111 **Sezary Syndrome Cells Unlike Normal Circulating T Lymphocytes Fail to Migrate Following Engagement of NT_1 Receptor**
Marilyn Magazin, Ewa Poszepczynska-Guigné, Martine Bagot, Laurence Boumsell, Christelle Pruvost, Pascale Chalon, Jean-Michel Culouscou, Pascual Ferrara, and Armand Bensussan

119 **Modulation of Skin Norepinephrine Turnover by Allergen Sensitization: Impact on Contact Hypersensitivity and T Helper Priming**
Georges J.M. Maestroni

KERATINOCYTES/EPIDERMIS

125 **Arsenic Induces Human Keratinocyte Apoptosis by the FAS/FAS Ligand Pathway, Which Correlates with Alterations in Nuclear Factor-κB and Activator Protein-1 Activity**
Wei-Ting Liao, Kee-Lung Chang, Chai-Li Yu, Gow-Shing Chen, Louis W. Chang, and Hsin-Su Yu

130 **Rosiglitazone Inhibits Proliferation, Motility, and Matrix Metalloproteinase Production in Keratinocytes**
Narasimharao Bhagavathula, Kamalakar C. Nerusu, Ashish Lal, Charles N. Ellis, Amar Chittiboyina, Mitchell A. Avery, Christopher I. Ho, Stephen C. Benson, Harrihar A. Pershadsingh, Theodore W. Kurtz, and James Varani

140 **Association of Cyclic Adenosine Monophosphate with Permeability Barrier Homeostasis of Murine Skin**
Mitsuhiro Denda, Shigeyoshi Fuziwara, and Kaori Inoue

147 **Hair Keratin Associated Proteins: Characterization of a Second High Sulfur KAP Gene Domain on Human Chromosome 21**
Michael A. Rogers, Lutz Langbein, Hermelita Winter, Iris Beckmann, Silke Praetzel, and Jürgen Schweizer

MELANOCYTES/MELANOMA

159 **Topical Application of a Protein Kinase C Inhibitor Reduces Skin and Hair Pigmentation**
Hee-Young Park, Jin Lee, Salvador González, Maritza A. Middelkamp-Hup, Sameer Kapasi, Shaun Peterson, and Barbara A. Gilchrest

167 **Membrane Type-1 Matrix Metalloproteinase Promotes Human Melanoma Invasion and Growth**
Joji Iida, Krista L. Wilhelmson, Matthew A. Price, Christopher M. Wilson, Duanqing Pei, Leo T. Furcht, and James B. McCarthy

NEUROBIOLOGY

177 **Sheet Preparations Expose the Dermal Nerve Plexus of Human Skin and Render the Dermal Nerve End Organ Accessible to Extensive Analysis**
Erwin Tschachler, Christina M. Reinisch, Christoph Mayer, Karin Paiha, Hans Lassmann, and Wolfgang Weninger

183 **Ultraviolet Radiation-Induced Inflammation as a Model for Cutaneous Hyperalgesia**
Graham I. Harrison, Antony R. Young, and Stephen B. McMahon

TUMOR BIOLOGY

190 **The Ultraviolet Fingerprint Dominates the Mutational Spectrum of the *p53* and *Ha-ras* Genes in Psoralen + Ultraviolet A Keratoses from Psoriasis Patients**
Peter Wolf, Heidemarie Kreimer-Erlacher, Hannes Seidl, Barbara Bäck, H. Peter Soyer, Helmut Kerl

VASCULAR BIOLOGY

201 **Ultraviolet B-Induced Skin Angiogenesis Is Associated with a Switch in the Balance of Vascular Endothelial Growth Factor and Thrombospondin-1 Expression**
Kiichiro Yano, Kentaro Kajiya, Miki Ishiwata, Young-Kwon Hong, Tokichi Miyakawa, and Michael Detmar

209 **Single-Nucleotide Polymorphisms of Vascular Endothelial Growth Factor in Psoriasis of Early Onset**
Helen S. Young, Angela M. Summers, Monica Bhushan, Paul E. C. Brenchley, and Christopher E. M. Griffiths

WOUND HEALING

216 **Analysis of Gene Expression in Fibroblasts in Response to Keratinocyte-Derived Factors *In Vitro:* Potential Implications for the Wound Healing Process**
Daniel Nowinski, Ann-Sofie Lysheden, Humphrey Gardner, Kristofer Rubin, Bengt Gerdin, and Mikael Ivarsson

222 **Keratinocyte Growth Factor 1 Inhibits Wound Edge Epithelial Cell Apoptosis *In Vitro***
James D. Firth and Edward E. Putnins

LETTERS TO THE EDITOR

232 ***Krt6a*-Cre Transgenic Mice Direct *LoxP*-Mediated Recombination to the Companion Cell Layer of the Hair Follicle and Following Induction by Retinoic Acid to the Interfollicular Epidermis**
Ian Smyth, Tammy Ellis, Rehan Hetherington, Emily Riley, Monica Narang, Donna Mahony, Carol Wicking, Joseph A. Rothnagel, and Brandon J. Wainwright

235 **The Human Hair Bulb is a Source and Target of CRH**
Natsuho Ito, Taisuke Ito, Albrecht Bettermann, and Ralf Paus

FEBRUARY 2004 VOLUME 122 NUMBER 2

REMEMBERING THOMAS B. FITZPATRICK

vii **Chai – Eighteen Quotations for TBF**
Lowell A. Goldsmith

ix **Fitzpatrick's Impact on Photobiology and Photomedicine**
John A. Parrish

xi **We Came Over on the Boat Together**
Aaron B. Lerner

xv **The Thomas B. Fitzpatrick Professorship at Harvard Medical School**
Thomas Kupper

xvi **Dr Fitzpatrick's Influence in Japanese Dermatology**
Atsushi Kukita

xviii **PUVA and the International Nature of Dr Fitzpatrick's Influence**
Klaus Wolff

xx **In Memory of Thomas Bernhard Fitzpatrick**
Madhu A. Pathak

xxii **Thomas B Fitzpatrick MD: 1948–51: The Residency Years and Preparation for Doctoral Thesis: Mayo Clinic**
Mark D.P. Davis, Clark C. Otley, Mark R. Pittelkow, Marian T. McEvoy, and Randall K. Roenigk

xxv **Remembering Thomas Fitzpatrick**
Brian J. Nickoloff

xxvi **TBF and DIGM**
Irwin M. Freedberg

xxvii **Melanocyte Biology: Before, During and After the Fitzpatrick Era**
Mina Yaar and Barbara A. Gilchrest

xxx **Skin Phototypes 2003**
Susanne Astner and R. Rox Anderson

xxxii **Melanoma Before and After Thomas B. Fitzpatrick**
Martin C. Mihm, Jr. and Arthur J. Sober

xxxiv **Piebaldism and Neurofibromatosis Type 1: Horses of Very Different Colors**
Richard A. Spritz, Peter H. Itin, and David H. Gutmann

xxxvi **The Epidermal Permeability Barrier: From the Early Days at Harvard to Emerging Concepts**
Peter M. Elias

xl **The Honorary Doctor Fitzpatrick**
Lowell A. Goldsmith

xliii **Clinical Snippets**
Lowell A. Goldsmith

ORIGINAL ARTICLES

APPENDAGES

239 **Wnt Signaling through the β-Catenin Pathway Is Sufficient to Maintain, but Not Restore, Anagen-Phase Characteristics of Dermal Papilla Cells**
Hidenao Shimizu and Bruce A. Morgan

CLINICAL RESEARCH

246 **Geographic and Patient Variation in Receipt of Surveillance Procedures After Local Excision of Cutaneous Melanoma**
David A. Barzilai, Kevin D. Cooper, Duncan Neuhauser, Alfred A. Rimm, and Gregory S. Cooper

CONNECTIVE TISSUE

256 **Elastin-Derived Peptides Upregulate Matrix Metalloproteinase-2-ediated Melanoma Cell Invasion Through Elastin-Binding Protein**
Carole Ntayi, Anne-Laure Labrousse, Romain Debret, Philipe Birembaut, Georges Bellon, Frank Antonicelli, William Hornebeck, and Philipe Bernard

266 **Fibroblast Invasive Migration into Fibronectin/Fibrin Gels Requires a Previously Uncharacterized Dermatan Sulfate-CD44 Proteoglycan**
Richard A. F. Clark, Fubao Lin, Doris Greiling, Jianqang An, and John R. Couchman

278 **Matrix Metalloproteinase 9 Expression is Coordinately Modulated by the KRE-M9 and 12-O-Tetradecanoyl-Phorbol-13-Acetate Responsive Elements**
Takashi Kobayashi, Jiro Kishimoto, Shunji Hattori, Hiroshi Wachi, Hiroshi Shinkai, and Robert E. Burgeson

GENETICS

286 **A Gene for Freckles Maps to Chromosome 4q32–q34**
Xue-Jun Zhang, Ping-Ping He, Yan-Hua Liang, Sen Yang, Wen-Tao Yuan, Shi-Jie Xu, and Wei Huang

IMMUNOLOGY/INFECTION

291 **Ultraviolet Radiation Causes Less Immunosuppression in Patients with Polymorphic Light Eruption Than in Controls**
Roy A. Palmer and Peter S. Friedmann

295 **Ultraviolet-Radiation-Induced Erythema and Suppression of Contact Hypersensitivity Responses in Patients with Polymorphic Light Eruption**
Chantalle B. van de Pas, Deirdre A. Kelly, Paul T. Seed, Antony R. Young, John L. M. Hawk, and Susan L. Walker

300 **Ultraviolet B Radiation Suppresses Endocytosis, Subsequent Maturation, and Migration Activity of Langerhans Cell-Like Dendritic Cells**
Kana Mizuno, Hiroyuki Okamoto, and Takeshi Horio

307 **Perturbed 6-Tetrahydrobiopterin Recycling via Decreased Dihydropteridine Reductase in Vitiligo: More Evidence for H_2O_2 Stress**
Sybille Hasse, Nicholas C.J. Gibbons, Hartmut Rokos, Lee K. Marles, and Karin U. Schallreuter

KERATINOCYTES/EPIDERMIS

314 **Basis For Abnormal Desquamation And Permeability Barrier Dysfunction in RXLI**
Peter M. Elias, Debra Crumrine, Ulrich Rassner, Jean-Pierre Hachem, Gopinathan K. Menon, Wenyan Man, Monica Hoi Wun Choy, Laura Leypoldt, Kenneth R. Feingold, and Mary L. Williams

320 **Stratum Corneum Acidification in Neonatal Skin: Secretory Phospholipase A_2 and the Sodium/Hydrogen Antiporter-1 Acidify Neonatal Rat Stratum Corneum**
Joachim W. Fluhr, Martin J. Behne, Barbara E. Brown, David G. Moskowitz, Clare Selden, Man Mao-Qiang, Theodora M. Mauro, Peter M. Elias, and Kenneth R. Feingold

330 **Imiquimod-Induced Interleukin-1α Stimulation Improves Barrier Homeostasis in Aged Murine Epidermis**
Chantel O. Barland, Elizabeth Zettersten, Barbara S. Brown, Jianqin Ye, Peter M. Elias, and Ruby Ghadially

MELANOCYTES/MELANOMA

337 **Genetic Interaction Between *NRAS* and *BRAF* Mutations and *PTEN/MMAC1* Inactivation in Melanoma**
Hensin Tsao, Vikas Goel, Heng Wu, Guang Yang, and Frank G. Haluska

342 ***BRAF* Mutations Are Common Somatic Events in Melanocytic Nevi**
Rajiv Kumar, Sabrina Angelini, Erna Snellman, and Kari Hemminki

349 **Terpinen-4-ol, The Main Component of *Melaleuca Alternifolia* (Tea Tree) Oil Inhibits the *In Vitro* Growth of Human Melanoma Cells**
Annarica Calcabrini, Annarita Stringaro, Laura Toccacieli, Stefania Meschini, Manuela Marra, Marisa Colone, Giuseppe Salvatore, Francesca Mondello, Giuseppe Arancia, and Agnese Molinari

361 **Discrimination of Melanocytic Tumors by cDNA Array Hybridization of Tissues Prepared by Laser Pressure Catapulting**
Bernd Becker, Alexander Roesch, Christian Hafner, Wilhelm Stolz, Martin Dugas, Michael Landthaler, and Thomas Vogt

369 **Downregulation of *BRCA1* in A375 Melanoma Cell Line Increases Radio-Sensitivity and Modifies Metastatic and Angiogenic Gene Expression**
Cédric Hesling, Michel D'Incan, Chantal D'Incan, Pierre Souteyrand, Jean-Claude Monboisse, Sylvie Pasco, Jean-Claude Madelmont, and Yves Jean Bignon

381 ***In-Situ* Imaging Mass Spectrometry Analysis of Melanin Granules in the Human Hair Shaft**
Philippe Hallégot, Ralph Peteranderl, and Claude Lechene

387 **CpG Oligonucleotides Elicit Antitumor Responses in a Human Melanoma NOD/SCID Xenotransplantation Model**
Clemens Krepler, Volker Wacheck, Sabine Strommer, Gunther Hartmann, Peter Polterauer, Klaus Wolff, Hubert Pehamberger, and Burkhard Jansen

392 **The Melanoma Inhibitor of Apoptosis Protein: A Target for Spontaneous Cytotoxic T Cell Responses**
Mads Hald Andersen, Sine Reker, Jürgen C. Becker, and Per thor Straten

400 **Imatinib Mesylate Inhibits Platelet-Derived Growth Factor Receptor Phosphorylation of Melanoma Cells But Does Not Affect Tumorigenicity *In Vivo***
Eric C. McGary, Amir Onn, Lisa Mills, Amy Heimberger, Omar Eton, Gary W. Thomas, Mikhail Shtivelband, and Menashe Bar-Eli

406 **RPE65 of Retinal Pigment Epithelium, A Putative Receptor Molecule for Plasma Retinol-Binding Protein, is Expressed in Human Keratinocytes**
Gabriele Hinterhuber, Karla Cauza, Karin Brugger, Ruth Dingelmaier-Hovorka, Reinhard Horvat, Klaus Wolff, and Dagmar Foedinger

414 **Interferon-γ-Mediated Growth Regulation of Melanoma Cells: Involvement of STAT1-Dependent and STAT1-Independent Signals**
Marcin Kortylewski, Waraporn Komyod, Maria-Elisabeth Kauffmann, Anja Bosserhoff, Peter C. Heinrich, and Iris Behrmann

423 **Quantitative Measures of the Effect of the Melanocortin 1 Receptor on Human Pigmentary Status**
Lisa Naysmith, Karen Waterston, Tom Ha, Niamh Flanagan, Yvonne Bisset, Amanda Ray, Kazumasa Wakamatsu, Shosuke Ito, and Jonathan L. Rees

429 **An Assessment of a Variant of the DNA Repair Gene XRCC3 as a Possible Nevus or Melanoma Susceptibility Genotype**
Chandra Gooptu Bertram, Rupert M. Gaut, Jennifer H. Barrett, Juliette Randerson-Moor, Linda Whitaker, Faye Turner, Veronique Bataille, Isabel dos Santos Silva, Anthony J. Swerdlow, D. Timothy Bishop, and Julia A. Newton Bishop

433 **Epidermal and Hair Follicle Progenitor Cells Express Melanoma-Associated Chondroitin Sulfate Proteoglycan Core Protein**
Lucy Ghali, Soon-Tee Wong, Nick Tidman, Anthony Quinn, Michael P. Philpott, and Irene M. Leigh

443 **Melanoma Diagnosis by Raman Spectroscopy and Neural Networks: Structure Alterations in Proteins and Lipids in Intact Cancer Tissue**
Monika Gniadecka, Peter Alshede Philipsen, Sigurdur Sigurdsson, Sonja Wessel, Ole Faurskov Nielsen, Daniel Højgaard Christensen, Jana Hercogova, Kristian Rossen, Henrik Klem Thomsen, Robert Gniadecki, Lars Kai Hansen, and Hans Christian Wulf

450 **CDKN2A: The IVS2-105A/G Intronic Mutation Found in an Italian Patient Affected by Eight Primary Melanomas**
Silvia Majore, Caterina Catricalà, Francesco Binni, Paola De Simone, Laura Eibenschutz, and Paola Grammatico

452 **Characterization of Melanosomes in Murine Hermansky–Pudlak Syndrome: Mechanisms of Hypopigmentation**
Thuyen Nguyen and Maria L. Wei

461 **Regulation of Human Melanoma Growth and Metastasis by AGE–AGE Receptor Interactions**
Riichiro Abe, Tadamichi Shimizu, Hiroshi Sugawara, Hirokazu Watanabe, Hideki Nakamura, Hiroshi Choei, Nobuyuki Sasaki, Sho-ichi Yamagishi, Masayoshi Takeuchi, and Hiroshi Shimizu

PHOTOBIOLOGY

468 **Solar-Simulated Ultraviolet Radiation-Induced Upregulation of the Melanocortin-1 Receptor, Proopiomelanocortin, and α-Melanocyte-Stimulating Hormone in Human Epidermis *In Vivo***
Meinhard Schiller, Thomas Brzoska, Markus Böhm, Dieter Metze, Thomas E. Scholzen, André Rougier, and Thomas A. Luger

477 **Different Susceptibility of Malignant versus Nonmalignant Human T Cells Toward Ultraviolet A-1 Radiation-Induced Apoptosis**
Ritsuko Yamauchi, Akimichi Morita, Yoko Yasuda, Susanne Grether-Beck, Lars-Oliver Klotz, Takuo Tsuji, and Jean Krutmann

484 **A Synthetic Superoxide Dismutase/Catalase Mimetic (EUK-134) Inhibits Membrane-Damage-Induced Activation of Mitogen-Activated Protein Kinase Pathways and Reduces p53 Accumulation in Ultraviolet B-Exposed Primary Human Keratinocytes**
David Decraene, Katrien Smaers, David Gan, Tom Mammone, Mary Matsui, Daniel Maes, Lieve Declercq, and Marjan Garmyn

492 **Spectral Responses of Melanin to Ultraviolet A Irradiation**
Hao Ou-Yang, Georgios Stamatas, and Nikiforos Kollias

497 **p38 Mitogen-Activated Protein Kinase Inhibitor Protects the Epidermis Against the Acute Damaging Effects of Ultraviolet Irradiation by Blocking Apoptosis and Inflammatory Responses**
Jeffrey Hildesheim, Rania T. Awwad, and Albert J. Fornace, Jr.

503 **Involvement of Photooxidation of Melanogenic Precursors in Prolonged Pigmentation Induced by Ultraviolet A**
Kazuhisa Maeda and Masato Hatao

510 **Dietary Lutein Reduces Ultraviolet Radiation-Induced Inflammation and Immunosuppression**
Erica H. Lee, Dorothea Faulhaber, Kerry M. Hanson, Wanhong Ding, Sara Peters, Sreedevi Kodali, and Richard D. Granstein

518 **Mechanisms of Microvascular Response to Laser Pulses**
Kittisak Suthamjariya, William A. Farinelli, Wooseok Koh, and R. Rox Anderson

526 **Trichothiodystrophy Fibroblasts Are Deficient in the Repair of Ultraviolet-Induced Cyclobutane Pyrimidine Dimers and (6–4)Photoproducts**
Yoko Nishiwaki, Nobuhiko Kobayashi, Kyoko Imoto, Takaaki Iwamoto, Aya Yamamoto, Sachiko Katsumi, Toshihiko Shirai, Shigeki Sugiura, Yu Nakamura, Alain Sarasin, Sachiko Miyagawa, and Toshio Mori

533 **Expression Profiling of Human Keratinocyte Response to Ultraviolet A: Implications in Apoptosis**
Yu-Ying He, Jian-Li Huang, Robert H. Sik, Jie Liu, Michael P. Waalkes, and Colin F. Chignell

LETTERS TO THE EDITOR

544 **Validity Issues with the *In Vivo* Measurement of Skin Carotenoids Using Raman Spectroscopy**
Billy R. Hammond Jr., and Billy R. Wooten

546 **Author response**
Werner Gellermann, Igor V. Ermakov, and Paul Bernstein

549 **High-Efficiency Stable Gene Transduction in Primary Human Melanocytes Using a Lentiviral Expression System**
Shariff Dunlap, Xiaobing Yu, Linzhao Cheng, Curt I. Civin, and Rhoda M. Alani

552 **Langerhans Cells Integrated into Human Reconstructed Epidermis Respond to Known Sensitizers and Ultraviolet Exposure**
Valérie Facy, Virginie Flouret, Marcelle Régnier, and Rainer Schmidt

MARCH 2004 VOLUME 122 NUMBER 3

EDITORIALS

vi **Clinical Snippets**
Lowell A. Goldsmith

vii **In This Issue**
Paul R. Bergstresser

viii **In That Issue: The Burden of Skin Disease**
Mary-Margaret Chren and Martin A. Weinstock

ix **Pseudoxanthoma Elasticum—A Connective Tissue Disease or a Metabolic Disorder at the Genome/Environment Interface?**
Jouni Uitto

xi **Close Shave for a Keratin Disorder—K6hf Polymorphism Linked to Pseudofolliculitis Barbae**
W. H. Irwin McLean

xiv **Chemokine Receptors in Melanoma: CCR9 Has a Potential Role in Metastasis to the Small Bowel**
Sam T. Hwang

ORIGINAL ARTICLES

APPENDAGES

555 **Androgen Regulation of the Human Hair Follicle: The Type I Hair Keratin hHa7 Is a Direct Target Gene in Trichocytes**
Luis F. Jave-Suarez, Lutz Langbein, Hermelita Winter, Silke Praetzel, Michael A. Rogers, and Juergen Schweizer

565 **The RAIG Family Member, GPRC5D, Is Associated with Hard-Keratinized Structures**
Shinichi Inoue, Tadahiro Nambu, and Toshiyasu Shimomura

CLINICAL RESEARCH

574 **Cellular Coincidence of Clonal T Cell Receptor Rearrangements and Complex Clonal Chromosomal Aberrations—A Hallmark of Malignancy in Cutaneous T Cell Lymphoma**
J. Marcus Muche, Leena Karenko, Sylke Gellrich, Ritva Karhu, Soili Kytölä, Marketta Kähkönen, Ansgar Lukowsky, Wolfram Sterry, and Annamari Ranki

579 **Genomic Aberrations and Survival in Cutaneous T Cell Lymphomas**
Tanja C. Fischer, Sylke Gellrich, J. Marcus Muche, Tumenjargal Sherev, Heike Audring, Heidemarie Neitzel, Peter Walden, Wolfram Sterry, and Holger Tönnies

587 **The Prostaglandin E1 Analog Misoprostol Reduces Symptoms and Microvascular Arteriovenous Shunting in Erythromelalgia—A Double-Blind, Crossover, Placebo-Compared Study**
Cato Mørk, E. Göran Salerud, Claes L. Asker, and Knut Kvernebo

594 **Novel Autoantibody to Cu/Zn Superoxide Dismutase in Patients with Localized Scleroderma**
Masaki Nagai, Minoru Hasegawa, Kazuhiko Takehara, and Shinichi Sato

602 **Measures of Clinical Severity, Quality of Life, and Psychological Distress in Patients with Psoriasis: A Cluster Analysis**
Francesca Sampogna, Francesco Sera, and Damiano Abeni

CONNECTIVE TISSUE

608 **Novel *ABCC6* Mutations in Pseudoxanthoma Elasticum**
Nicolas Chassaing, Ludovic Martin, Juliette Mazereeuw, Laurence Barrié, Sonia Nizard, Jean-Louis Bonafé, Patrick Calvas, and Alain Hovnanian

614 **Localization of the Laminin α4 Chain in the Skin and Identification of a Heparin-Dependent Cell Adhesion Site Within the Laminin α4 Chain C-Terminal LG4 Module**
Hiroshi Matsuura, Yutaka Momota, Kaoru Murata, Hironori Matsushima, Nobuharu Suzuki, Motoyoshi Nomizu, Hiroshi Shinkai, and Atsushi Utani

621 **Lysyl Oxidase-Like and Lysyl Oxidase Are Present in the Dermis and Epidermis of a Skin Equivalent and in Human Skin and Are Associated to Elastic Fibers**
Emmanuelle Noblesse, Valérie Cenizo, Charbel Bouez, Agnès Borel, Claudine Gleyzal, Simone Peyrol, Marie-Paule Jacob, Pascal Sommer, and Odile Damour

631 **Differential Regulation by IL-1β and EGF of Expression of Three Different Hyaluronan Synthases in Oral Mucosal Epithelial Cells and Fibroblasts and Dermal Fibroblasts: Quantitative Analysis Using Real-Time RT-PCR**
Yoichi Yamada, Naoki Itano, Ken-ichiro Hata, Minoru Ueda, and Koji Kimata

GENETICS

640 **Variation at the *IRF2* Gene and Susceptibility to Psoriasis in Chromosome 4q-Linked Families**
James Parkinson, Celine Charon, Barbara S. Baker, Anne V. Powles, Sarah Rogers, Ann Caird, Damian Smedley, Stephanie Halford, Lionel Fry, and Mark I. McCarthy

644 **Missed Calculations and New Conclusions: Re-Calculation of Genotype Distribution Data Published in *Journal of Investigative Dermatology*, 1998–2003**
Balázs Györffy, István Kocsis, and Barna Vásárhelyi

647 **Homozygous Splice Site Mutations in PKP1 Result in Loss of Epidermal Plakophilin 1 Expression and Underlie Ectodermal Dysplasia/Skin Fragility Syndrome in Two Consanguineous Families**
Eli Sprecher, Vered Molho-Pessach, Arieh Ingber, Efraim Sagi, Margarita Indelman, and Reuven Bergman

652 **An Unusual Ala12Thr Polymorphism in the 1A α-Helical Segment of the Companion Layer-Specific Keratin K6hf: Evidence for a Risk Factor in the Etiology of the Common Hair Disorder Pseudofolliculitis Barbae**
Hermelita Winter, Daniel Schissel, David A. D. Parry, Thomasin A. Smith, Mirjana Liovic, E. Birgitte Lane, Lutz Edler, Lutz Langbein, Luis F. Jave-Suarez, Michael A. Rogers, Joseph Wilde, Gerald Peters, and Jürgen Schweizer

658 **Identification of the Cylindromatosis Tumor-Suppressor Gene Responsible for Multiple Familial Trichoepithelioma**
Xue-Jun Zhang, Yan-Hua Liang, Ping-Ping He, Sen Yang, Hong-Yan Wang, Jian-Jun Chen, Wen-Tao Yuan, Shi-Jie Xu, Yong Cui, and Wei Huang

IMMUNOLOGY/INFECTION

665 **Psoriasis-Like Cutaneous Inflammation in Mice Lacking Interleukin-1 Receptor Antagonist**
Joanna Shepherd, Matthew C. Little, and Martin J. H. Nicklin

670 **Ontogeny of Langerin/CD207 Expression in the Epidermis of Mice**
Christoph H. Tripp, Souyet Chang-Rodriguez, Patrizia Stoitzner, Sandra Holzmann, Hella Stössel, Patrice Douillard, Sem Saeland, Franz Koch, Adelheid Elbe-Bürger, and Nikolaus Romani

673 **Corticosteroids But Not Pimecrolimus Affect Viability, Maturation and Immune Function of Murine Epidermal Langerhans Cells**
Wolfram Hoetzenecker, Josef G. Meingassner, Rupert Ecker, Georg Stingl, Anton Stuetz, and Adelheid Elbe-Bürger

685 **Functional CCR9 Expression Is Associated with Small Intestinal Metastasis**
Anne Letsch, Ulrich Keilholz, Dirk Schadendorf, Geraldine Assfalg, Anne Marie Asemissen, Eckhard Thiel, and Carmen Scheibenbogen

691 **Upregulation of 8-Lipoxygenase in the Dermatitis of IκB-α-Deficient Mice**
Claus Schneider, W. David Strayhorn, Dana M. Brantley, Lillian B. Nanney, Fiona E. Yull, and Alan R. Brash

699 **Characterizing the Protective Component of the αβ T Cell Response to Transplantable Squamous Cell Carcinoma**
Michael Girardi, David Oppenheim, Earl J. Glusac, Renata Filler, Allan Balmain, Robert E. Tigelaar, and Adrian C. Hayday

707 **Human Single-Chain Antibodies Reactive with Native Chondroitin Sulfate Detect Chondroitin Sulfate Alterations in Melanoma and Psoriasis**
Toon F. C. M. Smetsers, Els M. A. van de Westerlo, Gerdy B. ten Dam, Ingrid M Overes, Joost Schalkwijk, Goos N. P. van Muijen, and Toin H. van Kuppevelt

KERATINOCYTES/EPIDERMIS

717 **Interferon α-Inducible Protein 27 (IFI27) is Upregulated in Psoriatic Skin and Certain Epithelial Cancers**
Sari Suomela, Li Cao, Anne Bowcock, and Ulpu Saarialho-Kere

722 **Biosynthesis of Acylceramide in Murine Epidermis: Characterization by Inhibition of Glucosylation and Deglucosylation, and by Substrate Specificity**
Yutaka Takagi, Hidemi Nakagawa, Noboru Matsuo, Tomoko Nomura, Minoru Takizawa, and Genji Imokawa

730 **A 4.2 kb Upstream Region of the Human Corneodesmosin Gene Directs Site-Specific Expression in Hair Follicles and Hyperkeratotic Epidermis of Transgenic Mice**
Hélène Gallinaro, Nathalie Jonca, Lutz Langbein, Christian Vincent, Michel Simon, Guy Serre, and Marina Guerrin

739 **Effects of Relative Humidity and Ambient Temperature on the Ballistic Delivery of Micro-Particles to Excised Porcine Skin**
Mark Kendall, Stephen Rishworth, Fiona Carter, and Thomas Mitchell

747 **Homo-Oligomerization of Human Corneodesmosin Is Mediated by Its N-Terminal Glycine Loop Domain**
Cécile Caubet, Nathalie Jonca, Frédéric Lopez, Jean-Pierre Estève, Michel Simon, and Guy Serre

755 **Relationship Between NMF (Lactate and Potassium) Content and the Physical Properties of the Stratum Corneum in Healthy Subjects**
Noriaki Nakagawa, Shingo Sakai, Masayuki Matsumoto, Kenichi Yamada, Masahiro Nagano, Takuo Yuki, Yasushi Sumida, and Hideyo Uchiwa

764 **Interleukin 6 Indirectly Induces Keratinocyte Migration**
Randle M. Gallucci, Dusti K. Sloan, Julie M. Heck, Anne R. Murray, and Sijy J. O'Dell

773 **Keratinocytes Rapidly Readjust Ceramide–Sphingomyelin Homeostasis and Contain a Phosphatidylcholine–Sphingomyelin Transacylase**
Reinhard Wanner, Matthias Peiser, and Burghardt Wittig

783 **Mechanical Stretching *In Vitro* Regulates Signal Transduction Pathways and Cellular Proliferation in Human Epidermal Keratinocytes**
Shoichiro Yano, Mayumi Komine, Manabu Fujimoto, Hitoshi Okochi, and Kunihiko Tamaki

791 **Regulation of MAPK Activation, AP-1 Transcription Factor Expression and Keratinocyte Differentiation in Wounded Fetal Skin**
Samantha Gangnuss, Allison J. Cowin, Ilse S. Daehn, Nick Hatzirodos, Joseph A. Rothnagel, Antiopi Varelias, and Timothy E. Rayner

MELANOCYTES/MELANOMA

805 **Aberrant Expression of the Maspin Gene Associated with Epigenetic Modification in Melanoma Cells**
Kei Wada, Chihaya Maesawa, Toshihide Akasaka, and Tomoyuki Masuda

NEUROBIOLOGY

812 **K252a, a High-Affinity Nerve Growth Factor Receptor Blocker, Improves Psoriasis: An *In Vivo* Study Using the Severe Combined Immunodeficient Mouse–Human Skin Model**
Siba P. Raychaudhuri, Mrinmoy Sanyal, Helena Weltman, and Smriti Kundu-Raychaudhuri

TUMOR BIOLOGY

820 **CD158k/KIR3DL2 Is a New Phenotypic Marker of Sezary Cells: Relevance for the Diagnosis and Follow-Up of Sezary Syndrome**
Ewa Poszepczynska-Guigné, Valérie Schiavon, Michel D'Incan, Hamid Echchakir, Philippe Musette, Nicolas Ortonne, Laurence Boumsell, Alessandro Moretta, Armand Bensussan, and Martine Bagot

VASCULAR BIOLOGY

824 **Circadian and Ultradian (12 h) Variations of Skin Blood Flow and Barrier Function in Non-Irritated and Irritated Skin—Effect of Topical Corticosteroids**
Gil Yosipovitch, Linda Sackett-Lundeen, Anthony Goon, Chan Yiong Huak, Chee Leok Goh, and Erhard Haus

830 **Activated, Not Resting, Platelets Increase Leukocyte Rolling in Murine Skin Utilizing a Distinct Set of Adhesion Molecules**
Ralf J. Ludwig, Jeanette E. Schultz, Wolf-Henning Boehncke, Maurizio Podda, Christa Tandi, Fritz Krombach, Holger Baatz, Roland Kaufmann, Ulrich H. von Andrian, and Thomas M. Zollner

LETTERS TO THE EDITOR

837 **A Novel Recessive Connexin 31 (GJB3) Mutation in a Case of Erythrokeratodermia Variabilis**
Alessandro Terrinoni, Aida Leta, Cristina Pedicelli, Eleonora Candi, Marco Ranalli, Pietro Puddu, Mauro Paradisi, Corrado Angelo, Giacinto Baggetta, and Gerry Melino

840 **Estrogens and Human Scalp Hair Growth—Still More Questions than Answers**
Franziska Conrad, Ulrich Ohnemus, Enikö Bodo, Albrecht Bettermann, and Ralf Paus

843 **Polymorphisms in the Promoter of the Interleukin-4 Receptor α Chain Gene Are Associated with Atopic Dermatitis in Japan**
Naoko Hosomi, Kazuyoshi Fukai, Naoki Oiso, Atsushi Kato, Masamitsu Ishii, Hiroyuki Kunimoto, and Koichi Nakajima

846 **Langerhans Cells in CD44-Deficient Mice Emigrate from the Epidermis But Fail to Reach the Lymph Nodes After Hapten Application**
Diana I. Mummert, Akira Takashima, and Mark E. Mummert

848 **A Soy-Derived Immunostimulating Peptide Inhibits Etoposide-Induced Alopecia in Neonatal Rats**
Takahiro Tsuruki, Kyoya Takahata, and Masaaki Yoshikawa

851 **Presence of a Sporadic Case of Systemic Granulomatosis Syndrome with a *CARD15* Mutation**
Nobuo Kanazawa, Satoko Matsushima, Naotomo Kambe, Takao Tachibana, Sonoko Nagai, and Yoshiki Miyachi

853 **Population Attributable Fraction Estimates of Familial Risk in Cutaneous Melanoma**
Annette Pfahlberg, Wolfgang Uter, and Olaf Gefeller

855 **Researcher Opinions on Human Embryonic Stem Cell Issues**
Amanda L. Drake, Lauren F. Heilig, Katarzyna Z. Kozak, Eric J. Hester, and Robert P. Dellavalle

857 **Insuring Rapid and Robust Safety Assessment**
Robert S. Stern and Tamar Njisten

859 **The Cell Infiltrate in Lymphomatoid Papulosis Comprises a Mixture of Polyclonal Large Atypical Cells (CD30-Positive) and Smaller Monoclonal T cells (CD30-Negative)**
Sylke Gellrich, Martin Wernicke, Anke Wilks, Ansgar Lukowsky, J. Marcus Muche, Kim Christian Jasch, Heike Audring, David Mason, and Wolfram Sterry

862 **SID 2004 Meeting Abstracts**

APRIL 2004 VOLUME 122 NUMBER 4

EDITORIAL

iv **Clinical Snippets**
Lowell A. Goldsmith

v **In This Issue**
Thomas Schwarz

COMMENTARIES

vii **Making Waves with Hairs**
Maksim Plikus and Cheng-Ming Chuong

x **Nail that Mutation—Keratin 17 Defect in Late-Onset Pachyonychia**
Frances J. D. Smith

xii **Ehlers–Danlos Syndrome—Molecular Genetics Beyond the Collagens**
Jouni Uitto and Franziska Ringpfeil

CELL BIOLOGY

863 **Histamine Enhances the Production of Granulocyte-Macrophage Colony-Stimulating Factor via Protein Kinase Cα and Extracellular Signal-Regulated Kinase in Human Keratinocytes**
Naoko Kanda and Shinichi Watanabe

CLINICAL RESEARCH

873 **Incidence of Hand Eczema—A Population-Based Retrospective Study**
Birgitta Meding and Bengt Järvholm

CONNECTIVE TISSUE

878 **Type II Collagen Accumulation in Overlying Dermo-Epidermal Junction of Pilomatricoma Is Mediated by Bone Morphogenetic Protein 2 and 4**
Hideki Mieno, Kei Kuroda, Hiroshi Shinkai, Hidekatsu Yoshioka, and Shingo Tajima

885 **Deficiency of Tenascin-X Causes Abnormalities in Dermal Elastic Fiber Morphology**
Manon C. Zweers, Ivonne M. van Vlijmen-Willems, Toin H. van Kuppevelt, Robert P. Mecham, Peter M. Steijlen, Jim Bristow, and Joost Schalkwijk

GENETICS

892 **A Novel Mutation in the Second Half of the Keratin 17 1A Domain in a Large Pedigree with Delayed-Onset Pachyonychia Congenita Type 2**
Sheng-Xiang Xiao, Yi-Guo Feng, Xiao-Rong Ren, Sheng-Shun Tan, Li Li, Jun-Min Wang, and Yao-Zhou Shi

896 **Novel Mutations of the RNA-Specific Adenosine Deaminase Gene (*DSRAD*) in Chinese Families with Dyschromatosis Symmetrica Hereditaria**
Qing Liu, Wenli Liu, Li Jiang, Miao Sun, Yang Ao, Xiuli Zhao, Yong Song, Yang Luo, Wilson H. Y. Lo, and Xue Zhang

900 **Monitoring the 3-Year Efficacy of Enzyme Replacement Therapy in Fabry Disease by Repeated Skin Biopsies**
Beth L. Thurberg, H. Randolph Byers, Scott R. Granter, Robert G. Phelps, Ronald E. Gordon, and Michael O'Callaghan

909 **Structural and Functional Consequences of Loricrin Mutations in Human Loricrin Keratoderma (Vohwinkel Syndrome with Ichthyosis)**
Matthias Schmuth, Joachim W. Fluhr, Debra C. Crumrine, Yoshikazu Uchida, Jean-Pierre Hachem, Martin Behne, David G. Moskowitz, Angela M. Christiano, Kenneth R. Feingold, and Peter M. Elias

923 **Psoriasis Is Not Associated with IL-12p70/IL-12p40 Production and *IL12B* Promoter Polymorphism**
Nicolle H. R. Litjens, Mariena J. A. van der Plas, Bep Ravensbergen, Sandra C. Numan-Ruberg, Yvette van Assen, H. Bing Thio, Jaap T. van Dissel, Esther van de Vosse, and Peter H. Nibbering

IMMUNOLOGY/INFECTION

927 **T Cell Epitope-Specific Defects in the Immune Response to Cat Allergen in Patients with Atopic Dermatitis**
Raquel Carneiro, Amanda Reefer, Barbara Wilson, Juergen Hammer, Thomas Platts-Mills, Natalie Custis, and Judith Woodfolk

937 **Human Airway Trypsin-Like Protease Induces PAR-2-Mediated IL-8 Release in Psoriasis Vulgaris**
Kana Iwakiri, Mohammad Ghazizadeh, Enjing Jin, Masakazu Fujiwara, Tamiko Takemura, Shin-ichiro Takezaki, Seiji Kawana, Susumu Yasuoka, and Oichi Kawanami

945 **UVB-Irradiated Dendritic Cells Fail to Tolerize Murine $CD8^+$ Naïve or Effector T Cells**
Jan C. Dudda, Ralf W. Denfeld, Jan C. Simon, and Stefan F. Martin

953 **Expression of Indoleamine 2,3-Dioxygenase in Dermal Fibroblasts Functions as a Local Immunosuppressive Factor**
Yunyuan Li, Edward E. Tredget, Ruhangiz T. Kilani, Takashi Iwashina, Ali Karami, Xiaoyue Lin, and Aziz Ghahary

KERATINOCYTES/EPIDERMIS

965 **A Novel Mouse Type I Intermediate Filament Gene, Keratin 17n (K17n), Exhibits Preferred Expression in Nail Tissue**
Xuemei Tong and Pierre A. Coulombe

971 **Peroxisome Proliferator-Activated Receptor (PPAR)-β/δ Stimulates Differentiation and Lipid Accumulation in Keratinocytes**
Matthias Schmuth, Christopher M. Haqq, William J. Cairns, Julie C. Holder, Sheri Dorsam, Sandra Chang, Peggy Lau, Ashley J. Fowler, Gary Chuang, Arthur H. Moser, Barbara E. Brown, Man Mao-Qiang, Yoshikazu Uchida, Kristina Schoonjans, Johan Auwerx, P. Chambon, Timothy M. Willson, Peter M. Elias, and Kenneth R. Feingold

984 **25 Hydroxyvitamin D 1 α-Hydroxylase Is Required for Optimal Epidermal Differentiation and Permeability Barrier Homeostasis**
D. D. Bikle, S. Chang, D. Crumrine, H. Elalieh, M.-Q. Man, E. H. Choi, O. Dardenne, Z. Xie, R. St. Arnaud, K. Feingold, and P. M. Elias

993 **Molecular Size as the Main Determinant of Solute Maximum Flux Across the Skin**
Beatrice M. Magnusson, Yuri G. Anissimov, Sheree E. Cross, and Michael S. Roberts

1000 **A Constitutive NADPH Oxidase-Like System Containing gp91*phox* Homologs in Human Keratinocytes**
Walee Chamulitrat, Wolfgang Stremmel, Tsukasa Kawahara, Kazuhito Rokutan, Hirotada Fujii, Kirstin Wingler, Harald H. H. W. Schmidt, and Rainer Schmidt

MELANOCYTES/MELANOMA

1010 **α-Melanocyte-Stimulating Hormone, MSH 11–13 KPV and Adrenocorticotropic Hormone Signalling in Human Keratinocyte Cells**
Richard J. Elliott, Marika Szabo, Mark J. Wagner, E. Helen Kemp, Sheila MacNeil, and John W. Haycock

PHOTOBIOLOGY

1020 **A Chemiluminescence Study of UVA-Induced Oxidative Stress in Human Skin *In Vivo***
Hao Ou-Yang, Georgios Stamatas, Claude Saliou, and Nikiforos Kollias

1030 **Immunoprotective UVA (320–400 nm) Irradiation Upregulates Heme Oxygenase-1 in the Dermis and Epidermis of Hairless Mouse Skin**
Munif Allanson and Vivienne E. Reeve

TUMOR BIOLOGY

1037 **Evidence of Increased Apoptosis and Reduced Proliferation in Basal Cell Carcinomas Treated with Tazarotene**
Augusto Orlandi, Luca Bianchi, Antonio Costanzo, Elena Campione, Luigi Giusto Spagnoli, and Sergio Chimenti

1042 **Epicutaneous Application of CpG Oligodeoxynucleotides with Peptide or Protein Antigen Promotes the Generation of CTL**
Sandra K. Klimuk, Hossain M. Najar, Sean C. Semple, Soudabeh Aslanian, and Jan P. Dutz

LETTERS TO THE EDITOR

1050 **Expression of Neuropeptide Galanin and Galanin Receptors in Human Skin**
Barbara Kofler, Alexandra Berger, Radmila Santic, Kerstin Moritz, Dietmar Almer, Camilla Tuechler, Roland Lang, Michael Emberger, Alfred Klausegger, Wolfgang Sperl, and Johann W. Bauer

1054 **CD2BP1 and CARD15 Mutations Are Not Associated with Pyoderma Gangrenosum in Patients with Inflammatory Bowel Disease**
Bill Newman, David Cescon, Adam Domenchini, and Katherine A. Siminovitch

1057 **Hair Whorls and Monozygosity**
Michael L. Paine, Caroline T. Paine, and Geoffrey A. Machin

1059 **Fetal Microchimerism Is Common in Normal and Diseased Vulvar Skin**
Sigrid Regauer, Patrizia Schwaiger, Bernadette Liegl and Michael Klintschar

MAY 2004 VOLUME 122 NUMBER 5

EDITORIAL

v **Clinical Snippets**
Lowell A. Goldsmith

vi **Research Snippets from the British Journal of Dermatology**

vii **In This Issue—Oncogenes, Tumor Suppressor Genes and Melanocytic Lesions**
Mark C. Udey and Thomas J. Hornyak

ix **Connecting Wounds with Connexins**
Malcolm B. Hodgins

xi **The Epidermal Lamellar Body: A Fascinating Secretory Organelle**
Manigé Fartasch

xiii **Immunopathological Mechanisms of Acantholysis in Pemphigus Vulgaris: An Explanation by Ultrastructural Observations**
Zhi Liu, Ning Li, and Luis A. Diaz

xv **Imiquimod: Unexpected Killer**
Martin Leverkus

xvii **Bullous Pemphigoid: What Is the Prognosis?**
Robert A. Swerlick and Neil J. Korman

REVIEWS

1061 **The Bone Marrow Is Akin to Skin: HCELL and the Biology of Hematopoietic Stem Cell Homing**
Robert Sackstein

1070 **Staphylococcus Aureus Exfoliative Toxins: How They Cause Disease**
Lisa R. W. Plano

ORIGINAL ARTICLES

APPENDAGES

1078 **On the Regulation of Hair Keratin Expression: Lessons from Studies in Pilomatricomas**
Bernard Cribier, Bernard Peltre, Edouard Grosshans, Lutz Langbein, and Jürgen Schweizer

CELL BIOLOGY

1084 **Bulge- and Basal Layer-Specific Expression of Fibroblast Growth Factor-13 (FHF-2) in Mouse Skin**
Mitsuko Kawano, Satoshi Suzuki, Masashi Suzuki, Junko Oki, and Toru Imamura

CLINICAL RESEARCH

1091 **Mortality Rate of Bullous Pemphigoid in a US Medical Center**
Rand L. Colbert, David M. Allen, Daniel Eastwood and Janet A. Fairley

CONNECTIVE TISSUE

1096 **Loss of EPC-1/PEDF Expression During Skin Aging *In Vivo***
Mary Kay Francis, Stacia Appel, Christine Meyer, Samuel J. Balin, Arthur K. Balin, and Vincent J. Cristofalo

GENETICS

1106 **Psoriatic Arthritis and *CARD15* Gene Polymorphisms: No Evidence for Association in the Italian Population**
Emiliano Giardina, Giuseppe Novelli, Antonio Costanzo, Steven Nisticò, Cristina Bulli, Cecilia Sinibaldi, Maria Laura Sorgi, Sergio Chimenti, Francesco Pallone, Egisto Taccari, and Paola Borgiani

1108 **Genetic Heterogeneity of KID Syndrome: Identification of a Cx30 Gene (*GJB6*) Mutation in a Patient with KID Syndrome and Congenital Atrichia**
Amy Y. Jan, Shivan Amin, Paulina Ratajczak, Gabriele Richard, and Virginia P. Sybert

1114 **Triple Helix-Mediated Inhibition of Gene Expression Is Increased by PUVA**
Robert Besch, Christoph Marschall, Theda Schuh, Carine Giovannangeli, Claudia Kammerbauer, and Klaus Degitz

1121 **Identification of a Locus for Punctate Palmoplantar Keratodermas at Chromosome 8q24.13–8q24.21**
Xue-Jun Zhang, Ming Li, Tian-Wen Gao, Ping-Ping He, Sheng-Cai Wei, Jiang-Bo Liu, Cheng-Rang Li, Yong Cui, Sen Yang, Wen-Tao Yuan, Chun-Ying Li, Yu-Feng Liu, Shi-Jie Xu, and Wei Huang

1126 **Genome Scans Provide Evidence for Keloid Susceptibility Loci on Chromosomes 2q23 and 7p11**
Alexander G. Marneros, James E. C. Norris, Shoji Watanabe, Ernst Reichenberger and Bjorn R. Olsen

IMMUNOLOGY/INFECTION

1133 **Genetic Polymorphisms of Killer Cell Immunoglobulin-Like Receptors Are Associated with Susceptibility to Psoriasis Vulgaris**
Yu Suzuki, Yoshiaki Hamamoto, Yumie Ogasawara, Kimi Ishikawa, Yoshiaki Yoshikawa, Takehiko Sasazuki, and Masahiko Muto

1137 **Epidermal Lamellar Granules Transport Different Cargoes as Distinct Aggregates**
Akemi Ishida-Yamamoto, Michel Simon, Mari Kishibe, Yuki Miyauchi, Hidetoshi Takahashi, Shigetaka Yoshida, Timothy J O'Brien, Guy Serre, and Hajime Iizuka

1145 **IgG Binds to Desmoglein 3 in Desmosomes and Causes a Desmosomal Split Without Keratin Retraction in a Pemphigus Mouse Model**
Atsushi Shimizu, Akira Ishiko, Takayuki Ota, Kazuyuki Tsunoda, Masayuki Amagai, and Takeji Nishikawa

1154 **Characterization of the Sensitizing Potential of Chemicals by *In Vitro* Analysis of Dendritic Cell Activation and Skin Penetration**
Pierre Aeby, Christoph Wyss, Heinz Beck, Peter Griem, Heike Scheffler, and Carsten Goebel

1165 **A Model System Using Tape Stripping for Characterization of Langerhans Cell-Precursors *In Vivo***
Sandra Holzmann, Christoph H. Tripp, Matthias Schmuth, Katrin Janke, Franz Koch, Sem Saeland, Patrizia Stoitzner, and Nikolaus Romani

1175 **Induction of RANTES by TWEAK/Fn14 Interaction in Human Keratinocytes**
Long Jin, Atsuhito Nakao, Masafumi Nakayama, Noriko Yamaguchi, Yuko Kojima, Nobuhiro Nakano, Ryoji Tsuboi, Ko Okumura, Hideo Yagita, and Hideoki Ogawa

KERATINOCYTES/EPIDERMIS

1180 **FOXE1, A New Transcriptional Target of GLI2, Is Expressed in Human Epidermis and Basal Cell Carcinoma**
Thomas Eichberger, Gerhard Regl, Mohammed S. Ikram, Graham W. Neill, Michael P. Philpott, Fritz Aberger and Anna-Maria Frischauf

1188 **Keratinocyte-Releasable Stratifin Functions as a Potent Collagenase-Stimulating Factor in Fibroblasts**
Aziz Ghahary, Feridoun Karimi-Busheri, Yvonne Marcoux, Yunyaun Li, Edward E. Tredget, Ruhangiz Taghi Kilani, Liang Li, Jing Zheng, Ali Karami, Bernd O. Keller, and Michael Weinfeld

1198 **Insulin-Like Growth Factors (IGF) and IGF-Binding Proteins Bound to Vitronectin Enhance Keratinocyte Protein Synthesis and Migration**
Carolyn Hyde, Brett Hollier, Alex Anderson, Damien Harkin and Zee Upton

1207 **Expression of Cholesterol Sulfotransferase (SULT2B1b) in Human Skin and Primary Cultures of Human Epidermal Keratinocytes**
Yuko Higashi, Hirotoshi Fuda, Hidekatsu Yanai, Young Lee, Tomoko Fukushige, Tamotsu Kanzaki and Charles A. Strott

1214 **Proteinase-Activated Receptor-2 Stimulates Prostaglandin Production in Keratinocytes: Analysis of Prostaglandin Receptors on Human Melanocytes and Effects of PGE_2 and $PGF_{2\alpha}$ on Melanocyte Dendricity**
Glynis Scott, Sonya Leopardi, Stacey Printup, Namrita Malhi, Miri Seiberg, and Randi LaPoint

1225 **Characterization of Kdap, a Protein Secreted by Keratinocytes**
Shuichi Tsuchida, Makoto Bonkobara, James R. McMillan, Masashi Akiyama, Tatsuo Yudate, Yoshinori Aragane, Tadashi Tezuka, Hiroshi Shimizu, Ponciano D. Cruz, and Kiyoshi Ariizumi

1235 **Degradation of Corneodesmosome Proteins by Two Serine Proteases of the Kallikrein Family, SCTE/KLK5/hK5 and SCCE/KLK7/hK7**
Cécile Caubet, Nathalie Jonca, Maria Brattsand, Marina Guerrin, Dominique Bernard, Rainer Schmidt, Torbjörn Egelrud, Michel Simon, and Guy Serre

MELANOCYTES/MELANOMA

1245 **Tandem *BRAF* Mutations in Primary Invasive Melanomas**
Nancy E. Thomas, Audrey Alexander, Sharon N. Edmiston, Eloise Parrish, Robert C. Millikan, Marianne Berwick, Pamela Groben, David W. Ollila, Dianne Mattingly, and Kathleen Conway

1251 **Tyrosine-Induced Melanogenesis Shows Differences in Morphologic and Melanogenic Preferences of Melanosomes from Light and Dark Skin Types**
Frans van Nieuwpoort, Nico P.M. Smit, Ria Kolb, Hans van der Meulen, Henk Koerten, and Stan Pavel

1256 **The Epidermal Stem Cell Factor Is Over-Expressed in Lentigo Senilis: Implication for the Mechanism of Hyperpigmentation**
Hideko Hattori, Makoto Kawashima, Yoshiaki Ichikawa, and Genji Imokawa

1266 **Death Receptor-Independent Apoptosis in Malignant Melanoma Induced by the Small-Molecule Immune Response Modifier Imiquimod**
Michael P. Schön, B. Gregor Wienrich, Claudia Drewniok, Anne B. Bong, Jürgen Eberle, Christoph C. Geilen, Harald Gollnick, and Margarete Schön

PHOTOBIOLOGY

1277 **Induction of the Photoaging-Associated Mitochondrial Common Deletion *In Vivo* in Normal Human Skin**
Mark Berneburg, Heidi Plettenberg, Kathrin Medve-König, Annette Pfahlberg, H. Gers-Barlag, Olaf Gefeller, and Jean Krutmann

TUMOR BIOLOGY

1284 **$p16^{INK4a}$ and $p14^{ARF}$ Tumor Suppressor Genes Are Commonly Inactivated in Cutaneous Squamous Cell Carcinoma**
Victoria L. Brown, Catherine A. Harwood, Tim Crook, James G. Cronin, David P. Kelsell, and Charlotte M. Proby

1293 **Truncation of Activated Leukocyte Cell Adhesion Molecule: A Gateway to Melanoma Metastasis**
Léon C. L. T. van Kempen, Friedegund Meier, Mikala Egeblad, Monique J. F. Kersten-Niessen, Claus Garbe, Ulrich H. Weidle, Goos N. P. van Muijen, Meenhard Herlyn, Henri P. J. Bloemers, and Guido W. M. Swart

1302 **Reduced Expression of Insulin-Like Growth Factor-Binding Protein-3 (IGFBP-3) in Squamous Cell Carcinoma Complicating Recessive Dystrophic Epidermolysis Bullosa**
Rajeev Mallipeddi, Vesarat Wessagowit, Andrew P. South, Alistair M. Robson, Guy E. Orchard, Robin A. J. Eady, and John A. McGrath

WOUND HEALING

1310 **Connexins 26, 30, and 43: Differences Among Spontaneous, Chronic, and Accelerated Human Wound Healing**
Johanna M. Brandner, Pia Houdek, Birgit Hüsing, Colette Kaiser and Ingrid Moll

LETTERS TO THE EDITOR

1321 **Cryptic Splicing at a Non-Consensus Splice-Donor in a Patient with a Novel Mutation in the Plakophilin-1 Gene**
Peter M. Steijlen, Maurice A. M. van Steensel, Bastiaan J. H. Jansen, Willeke Blokx, Peter C. M. van de Kerkhof, Rudolf Happle, Michel van Geel

1325 **Lack of BRAF Mutations in Spitz Nevi**
Melissa Gill, Neil Renwick, David N. Silvers, and Jülide Tok Çelebi

1327 ***CDKN2A* and *MC1R* Mutations in Patients with Sporadic Multiple Primary Melanoma**
Ketty Peris, Maria Concetta Fargnoli, Alessia Pacifico, Tiziana Surrenti, Wilhem Stolz, Peter Wolf, Hans Peter Soyer, and Sergio Chimenti

1331 **Expression and Regulation of RANTES/CCL5, MIP-1α/CCL3, and MIP-1β/CCL4 in Mouse Langerhans Cells**
Hideki Fujita, Akihiko Asahina, Ping Gao, Hiromi Fujiwara, and Kunihiko Tamaki

1334 **No Association Between p53 Codon 72 Polymorphisms and Erythemal Response**
Claire Manson, Lisa Naysmith, Karen Waterston, David W. Melton, and Jonathan L. Rees

1336 **Identification of an HLA-A3-Restricted Cytotoxic T Lymphocyte (CTL) Epitope from ML-IAP**
Mads Hald Andersen, Jürgen C. Becker, and Per thor Straten

1338 **Methimazole Is an Inhibitor of Melanin Synthesis in Cultured B16 Melanocytes**
Behrooz Kasraee, Ambros Hügin, Christian Tran, Olivier Sorg, and Jean-Hilaire Saurat

1342 **Langerhans Cell Resistance, CD11b+ Cell Influx, and Cytokine mRNA Expression in Skin after UV Exposure in Patients with Polymorphous Light Eruption as Compared with Healthy Control Subjects**
Alexandra Wackernagel, Barbara Bäck, Franz Quehenberger, Lorenzo Cerroni, Helmut Kerl, and Peter Wolf

JUNE 2004 VOLUME 122 NUMBER 6

EDITORIAL

viii **Clinical Snippets**
Lowell A. Goldsmith

ix **In This Issue**
Glynis Scott

xi **UVA and NF-κB Activity: Ironing Out the Details**
Robert A. Swerlick and Neil J. Korman

xiii **ROS: A Step Closer to Elucidating Their Role in the Etiology of Light-Induced Skin Disorders**
Homer S. Black

xv **Psoriasis Genetics: The Way Forward**
Anne M. Bowcock

REVIEW ARTICLE

1345 **Roles for CD30 in the Biology and Treatment of $CD30^+$ Lymphoproliferative Diseases**
Suzanne Granados and Sam T. Hwang

ORGINAL ARTICLES

APPENDAGES

1348 **Sculpting Skin Appendages out of Epidermal Layers via Temporally and Spatially Regulated Apoptotic Events**
Chung-Hsing Chang, Mingke Yu, Ping Wu, Ting-Xin Jiang, Hsin-Su Yu, Randall B. Widelitz, and Cheng-Ming Chuong

CELL BIOLOGY

1356 **Keratinocyte G2/M Growth Arrest by 1,25-Dihydroxyvitamin D3 Is Caused by Cdc2 Phosphorylation Through Wee1 and Myt1 Regulation**
Xiuju Dai, Kenshi Yamasaki, Lujun Yang, Koji Sayama, Yuji Shirakata, Sho Tokumara, Yoko Yahata, Mikiko Tohyama, and Koji Hashimoto

1365 **Signaling Events During Induction of Plasminogen Activator Inhibitor-1 Expression by Sphingosylphosphorylcholine in Cultured Human Dermal Fibroblasts**
Kyung-Chae Kye, Eun-Kyung Chae, Yong-Jun Piao, Seonyang Park, Jang-Kyu Park, Chang Deok Kim, Jeung-Hoon Lee, and Ki-Beom Suhr

1372 **Dystroglycan in Skin and Cutaneous Cells: β-Subunit Is Shed from the Cell Surface**
Christine Herzog, Cristina Has, Claus-Werner Franzke, Frank G. Echtermeyer, Ursula Schlötzer-Schrehardt, Stephan Kröger, Erika Gustafsson, Reinhard Fässler, and Leena Bruckner-Tuderman

CLINICAL RESEARCH

1381 **Health-Related Quality of Life and Hand Eczema—A Comparison of Two Instruments, Including Factor Analysis**
Lena-Marie Wallenhammar, Mats Nyfjäll, Magnus Lindberg, and Birgitta Meding

CONNECTIVE TISSUE

1390 **Epidermal Growth Factor Induces Fibronectin Expression in Human Dermal Fibroblasts via Protein Kinase C δ Signaling Pathway**
Yoshihiro Mimura, Hironobu Ihn, Masatoshi Jinnin, Yoshihide Asano, Kenichi Yamane, and Kunihiko Tamaki

GENETICS

1399 **Association Analysis of Cystatin A and Zinc Finger Protein 148, Two Genes Located at the Psoriasis Susceptibility Locus PSORS5**
Lena Samuelsson, Camilla Stiller, Camilla Friberg, Charlotte Nilsson, Annica Inerot, and January Wahlström

1401 **Meta-Analysis of Genome-Wide Studies of Psoriasis Susceptibility Reveals Linkage to Chromosomes 6p21 and 4q28–q31 in Caucasian and Chinese Hans Population**
Gurdeep S. Sagoo, Rachid Tazi-Ahnini, Jonathan W. N. Barker, James T. Elder, Rajan P. Nair, Lena Samuelsson, Heiko Traupe, Richard C. Trembath, Darren A. Robinson, and Mark M. Iles

IMMUNOLOGY/INFECTION

1406 **Intravenous Anti-IL-5 Monoclonal Antibody Reduces Eosinophils and Tenascin Deposition in Allergen-Challenged Human Atopic Skin**
Simon Phipps, Patrick Flood-Page, Andrew Menzies-Gow, Yee Ean Ong, and A.B. Kay

1413 **BP230- and BP180-Specific Auto-Antibodies in Bullous Pemphigoid**
Sybille Thoma-Uszynski, Wolfgang Uter, Susanne Schwietzke, Silke C. Hofmann, Thomas Hunziker, Philippe Bernard, Regina Treudler, Christos C. Zouboulis, Gerold Schuler, Luca Borradori, and Michael Hertl

KERATINOCYTES/EPIDERMIS

1423 **Impaired Sphingomyelinase Activity and Epidermal Differentiation in Atopic Dermatitis**
Jens-Michael Jensen, Regina Fölster-Holst, Anke Baranowsky, Michael Schunck, Supandi Winoto-Morbach, Claudia Neumann, Stefan Schütze, and Ehrhardt Proksch

MELANOCYTES/MELANOMA

1432 **A Comparative Study of Photoacoustic and Reflectance Methods for Determination of Epidermal Melanin Content**
John A. Viator, Jason Komadina, Lars O. Svaasand, Guillermo Aguilar, Bernard Choi, and J. Stuart Nelson

PHOTOBIOLOGY

1440 **Ultraviolet A Radiation-Induced Immediate Iron Release Is a Key Modulator of the Activation of NF-κB in Human Skin Fibroblasts**
Olivier Reelfs, Rex M. Tyrrell, and Charareh Pourzand

1448 **Responses of Black and White Skin to Solar-Simulating Radiation: Differences in DNA Photodamage, Infiltrating Neutrophils, Proteolytic Enzymes Induced, Keratinocyte Activation, and IL-10 Expression**
Feiko Rijken, Piet L.B. Bruijnzeel, Huib van Weelden, and Rebecca C.M. Kiekens

1456 **Sunlight Exposure and (Sero)Prevalence of Epidermodysplasia Verruciformis-Associated Human Papillomavirus**
Fabian Termorshuizen, Mariet C.W. Feltkamp, Linda Struijk, Frank R. de Gruijl, Jan Nico Bouwes Bavinck, and Henk van Loveren

1463 ***In Vivo* Oxygen Radical Generation in the Skin of the Protoporphyria Model Mouse with Visible Light Exposure: An L-Band ESR Study**
Keizo Takeshita, Tokuko Takajo, Hiroshi Hirata, Mitsuhiro Ono, and Hideo Utsumi

1471 **Reduced Fibroblast Interaction with Intact Collagen as a Mechanism for Depressed Collagen Synthesis in Photodamaged Skin**
James Varani, Lucia Schuger, Michael K. Dame, Christina Leonard, Suzanne E. G. Fligiel, Sewon Kang, Gary J. Fisher and John J. Voorhees

1480 **Green Tea Polyphenols Prevent Ultraviolet Light-Induced Oxidative Damage and Matrix Metalloproteinases Expression in Mouse Skin**
Praveen K. Vayalil, Anshu Mittal, Yukihiko Hara, Craig A. Elmets, and Santosh K. Katiyar

1488 **Treatment with 5-Fluorouracil and Celecoxib Displays Synergistic Regression of Ultraviolet Light B-Induced Skin Tumors**
Traci A. Wilgus, Thomas S. Breza, Kathleen L. Tober, and Tatiana M. Oberyszyn

TUMOR BIOLOGY

1495 **Chromosomal Aberration Patterns Differ in Subtypes of Primary Cutaneous B Cell Lymphomas**
Christian Hallermann, Kjell M. Kaune, Reiner Siebert, Maarten H. Vermeer, Cees P. Tensen, Rein Willemze, Bastian Gunawan, Hans Peter Bertsch, and Christine Neumann

1503 **GLI2 Is Expressed in Normal Human Epidermis and BCC and Induces GLI1 Expression by Binding to its Promoter**
Mohammed S. Ikram, Graham W. Neill, Gerhard Regl, Thomas Eichberger, Anna-Maria Frischauf, Fritz Aberger, Anthony Quinn, and Mike Philpott

1510 **GBP-5 Splicing Variants: New Guanylate-Binding Proteins with Tumor-Associated Expression and Antigenicity**
Friederike Fellenberg, Tanja B. Hartmann, Reinhard Dummer, Dirk Usener, Dirk Schadendorf, and Stefan Eichmüller

LETTERS TO THE EDITOR

1518 **Implications of Using the ND1 Gene as a Control Region for Real-Time PCR Analysis of Mitochondrial DNA Deletions in Human Skin**
Andrew Harbottle, Kim J. Krishnan, and Mark A. Birch-Machin

1522 **Molecular Cloning of Human Dectin-2**
Nobuo Kanazawa, Kei Tashiro, Kayo Inaba, Manfred B. Lutz, and Yoshiki Miyachi

1525 **Announcements**

1526 **Volume Contents 122**

1540 **Indexes**